

Application No. 10/001,393  
Docket No. 2004U009.US  
Reply to Office Action Dated July 08, 2004

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A functionalized catalyst support comprising a particulated, solid support material having chemically bonded thereto a conjugated or non-conjugated diene or alkyne containing ligand group.
2. (Original) A functionalized catalyst support according to claim 1 having a chemical structure of the following formula:



wherein:

$S_0$  is a particulated, solid support material;

$D$  is a conjugated or non-conjugated diene or alkyne containing ligand attached to the particulated solid support containing up to 20 atoms other than hydrogen; and

$d$  is a positive number that is equal to the number of  $D$  groups attached to the substrate,  $S_0$ .

3. (Original) A functionalized catalyst support according to claim 1 or 2 wherein the support is silica, and  $d$  is chosen to provide a concentration of  $D$  groups on the substrate from  $1 \times 10^{-5}$   $\mu$ mole/gram to 1 mmole/ gram, more preferably from 0.1  $\mu$  mole/gram to 500  $\mu$ mole/g.
4. (Original) A functionalized catalyst support according to claim 3, wherein  $S_0$  possesses non-ionic, Lewis acid functionality  $a'$ , of the formula  $-M_{m}K_k$ , on the surface thereof, wherein:

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Me, is a Group 2, 12 or 13 metal, especially Al, bonded to the substrate, So,  
K is an extractable or exchangeable, anionic ligand group, especially a  
hydrocarbyl or halohydrocarbyl group of up to 20 atoms, not counting  
hydrogen, and  
m and k are selected to provide charge balance.

5. (Original) A supported catalyst composition comprising the reaction product of:
  - (a) the functionalized catalyst support of claim 1, and
  - (b) a Group 3-10 or Lanthanide metal complex containing a substituent which reacts with the functionalized catalyst support to thereby form a supported catalyst composition that is capable of activation to form an active polymerization catalyst for the polymerization of addition polymerizable monomers.
6. (Original) A supported catalyst composition according to claim 5, wherein the Group 3-10 metal complex contains at least one  $\pi$ -bonded anionic ligand group which is a conjugated or non-conjugated, cyclic or non-cyclic dienyl group, an allyl group, aryl group, or a substituted derivative thereof.
7. (Original) A supported catalyst composition according to claim 6, wherein the  $\pi$ -bonded anionic ligand group is a cyclopentadienyl group or a derivative thereof.
8. (Original) A supported catalyst composition according to any one of claims 5-7 additionally comprising an activator capable of activating the Group 3-10 or Lanthanide metal complex so as to be catalytically active for the polymerization of addition polymerizable monomers.
9. (Withdrawn) A polymerization process comprising contacting one or more addition polymerizable monomers under gas phase or slurry polymerization conditions with a catalyst composition according to Claim 8.

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10. (Withdrawn) A process according to claim 9, wherein ethylene is polymerized, optionally with one or more comonomers to form an ethylene homopolymer or copolymer.